#3477

OK

WATER QUALITY MEMORANDUM

Utah Coal Regulatory Program

August 12, 2010

TO: Internal File

THRU: James D. Smith, Permit Supervisor JDS 8/16/10

FROM: Kevin Lundmark, Environmental Scientist II KWL

SUBJECT: 2010 1st Quarter Water Monitoring, Mountain Coal Company, Gordon Creek 2, 7, & 8 Mine, C/007/0016, WQ10-1, Task ID 3477

The Gordon Creek 2, 7, & 8 Mine has been reclaimed and received Phase II bond release on all but 1.63 acres on March 7, 2007. The 1.63 acres contained a three-cell sediment pond which was reclaimed in October 2007. Water monitoring requirements for the period after Phase II bond release until final bond release are described in the MRP on page 7-56 and in Tables 7-17 and 7-18.

This report was prepared from monitoring data queried from the UDOGM database. The data that support this report were collected and submitted to the database by the Permittee. The data were downloaded into file O:\007016.GC2\Water Quality\Data\GC2_WQ2010.xls for this review.

1. Was data submitted for all of the MRP required sites? YES ☒ NO ☐

The Permittee is not required to monitor any springs or wells at the Gordon Creek 2, 7, & 8 Mine. Monitoring for UPDES discharges is no longer required as the sediment ponds and mine portals have been reclaimed.

Streams –

The Permittee is required to monitor one intermittent stream (2-2-W), and three ephemeral stream sites (2-7-W, 2-8-W, 2-9-W) quarterly for flow, field measurements and laboratory parameters as outlined on Table 7-18 of the MRP.

Stream 2-2-W (North Fork Gordon Creek) was reported with a flow of 124 gpm; other stream sites were not accessible due to snow. The Permittee reported that heavy runoff (presumably from snow melt) was occurring at the time of sampling. The Permittee submitted 1st quarter 2010 data for the site during 2nd quarter 2010.

2. Were all required parameters reported for each site? YES ☒ NO ☐

3. Were any irregularities found in the data? YES ☒ NO ☐

Results for the following eight constituents were greater than the average values (to date) by greater than two standard deviations in the March 29, 2010 sample at location 2-2-W: total cations, total anions, dissolved calcium, dissolved magnesium, hardness, conductivity, dissolved sodium and dissolved potassium. The cation – anion balance for the sample (3.95 %) was acceptable. The table below summarizes results for first quarter 2010, selected statistics from the data set, and the previous maximum values.

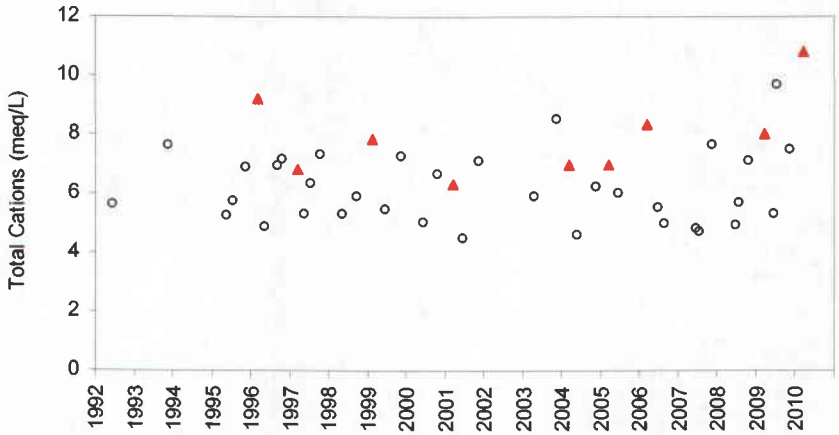
Stream Location 2-2-W

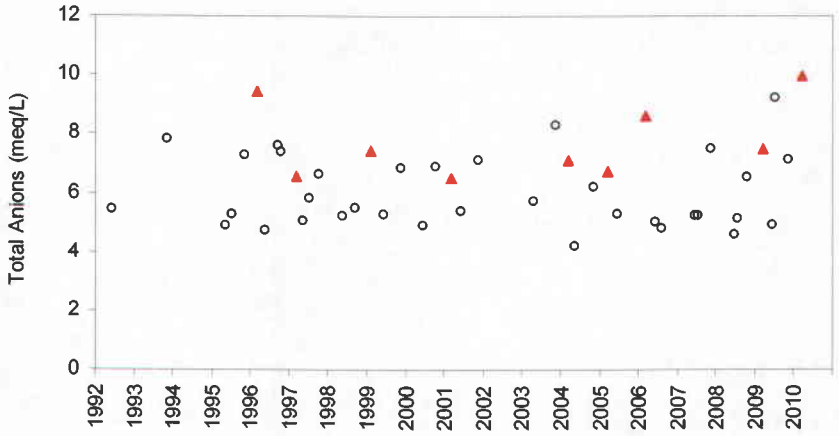
Parameter	WQ10-1 3/29/2010	Number Samples	Average	Standard Deviation	Maximum	Previous Maximum	
Tot-Cats (meq/L)	10.79	44	6.43	1.44	10.79	9.70	7/30/2009
Tot-Anis (meq/L)	9.97	44	6.30	1.57	9.97	9.40	3/26/1996
Dis-Ca (mg/L)	108.33	44	75.07	12.11	108.33	103.94	7/30/2009
Dis-Mg (mg/L)	56.64	42	29.35	7.44	56.64	47.25	7/30/2009
Hardns (mg/L CaCO3)	504	68	315	59	504	495	3/14/1995
Cond (µmhos/cm)	1474	157	583	219	1760	1760	3/26/1996
D-Na (mg/L)	12.97	43	5.38	3.11	23.60	23.60	3/29/2006
D-K (mg/L)	6.08	43	2.12	0.86	6.08	5.87	7/30/2009

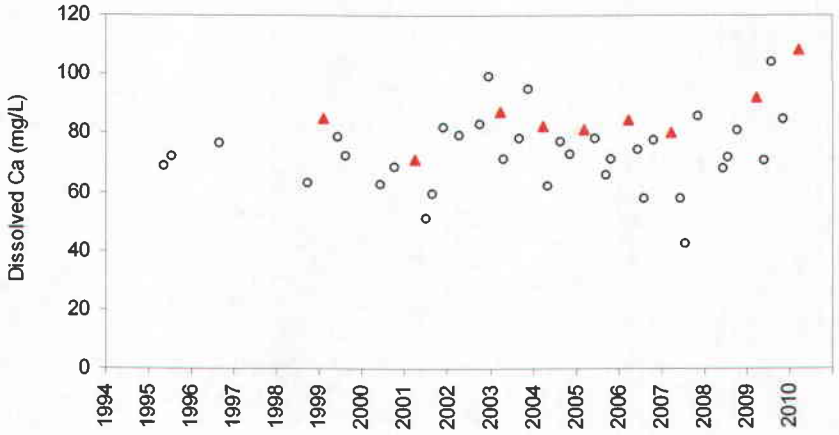
The plots on the following pages show available data for location 2-2-W for the eight monitoring constituents that were elevated above the average value by greater than two standard deviations in the first quarter 2010 sample. The red triangles denote samples collected during the first quarter; hollow circles denote samples collected during second, third and fourth quarters.

According to the MRP, monitoring is performed to provide information on the seasonal flow and water quality on streams that have a potential to be affected by mine discharge and surface disturbance. The Permittee expressed that the heavy runoff occurring at the time of sampling appears to have influenced the total dissolved solids (TDS) and metals concentrations in the first quarter 2010 sample. The TDS concentrations in the sample was 596 mg/L, which is well below the applicable UT water quality standard of 1,200 mg/L. The total suspended solids (TSS) concentration in the sample, 10 mg/L, is not elevated relative to measured TSS concentrations in the creek.

Plots showing water monitoring results for stream location 2-2-W
(Red triangles denote samples collected during first quarter)







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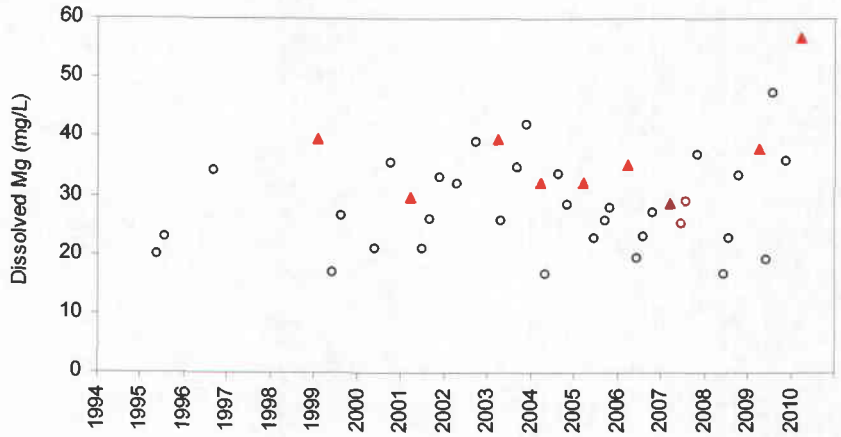

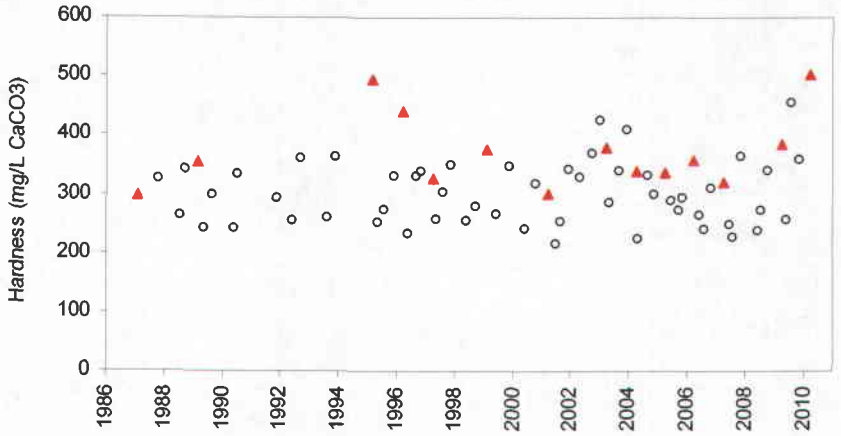

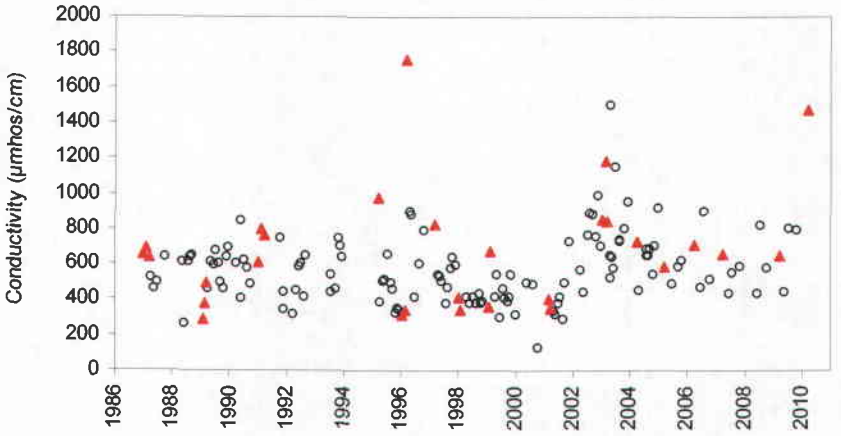

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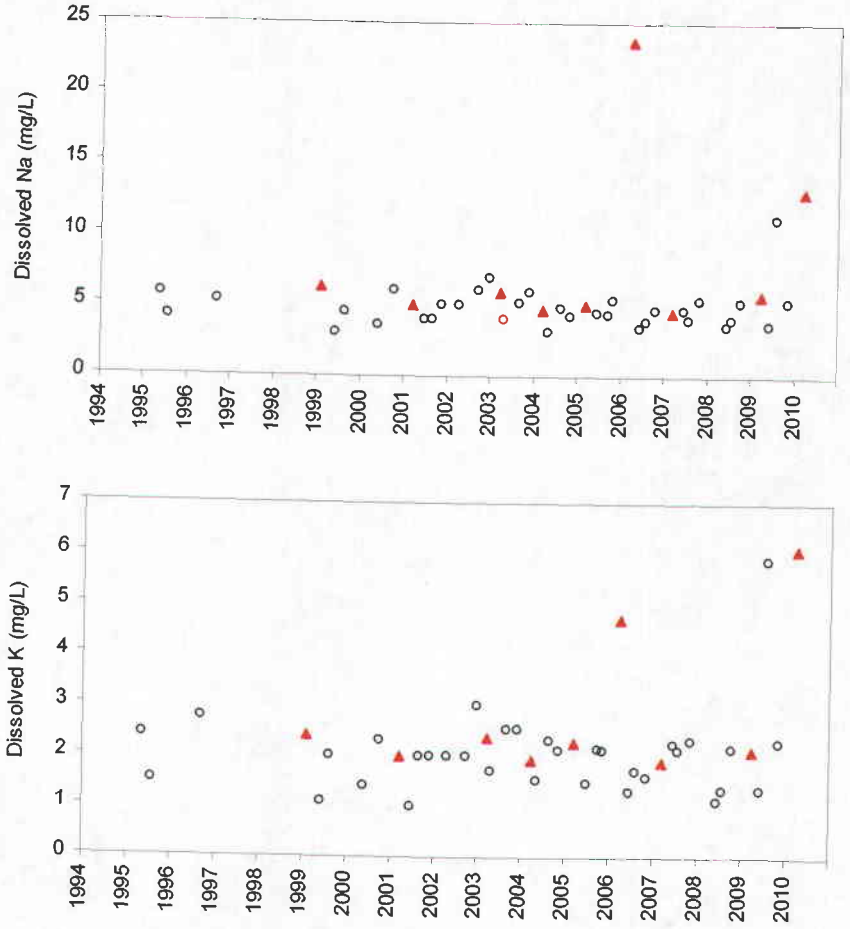

The elevated concentrations of dissolved constituents in the first quarter 2010 sample at location 2-2-W appear to be related to the spring flush during snowmelt. The sample results do not indicate impacts from mining or reclamation activities at the Gordon Creek 2, 7 & 8 mines.

4. On what date does the MRP require a five-year re-sampling of baseline water data.

The MRP does not require a five-year re-sampling of baseline water data.

5. Based on your review, what further actions, if any, do you recommend?

None